

## CLAIMS

What is claimed is:

- 1 1. An apparatus, comprising:
- 2 a) a pipeline having a series of stages;
- 3 b) at least one of said pipeline stages having an interface for coupling to
- 4 a memory that stores input capacity information for a packet, said
- 5 input capacity information obtainable from said packet's packet
- 6 header information; and
- 7 c) at least one of said pipeline stages having an interface that receives
- 8 packet size information, an interface that receives said input capacity
- 9 information and comparison logic coupled to both said interfaces.
- 1 2. The apparatus of claim 1 wherein said input capacity information is stored
- 2 within an input flow table within said memory device.
- 1 3. The apparatus of claim 1 wherein said input capacity information is part of a
- 2 user input flow, said user input flow having priority information.
- 1 4. The apparatus of claim 1 wherein said memory device further comprises a
- 2 tagging policy.

1 5. The apparatus of claim 1 further comprising a discard tag output coupled to  
2 said comparison logic, said discard tag indicative if said packets conforms to  
3 a user input rate.

1 6. A method, comprising:

2 a) presenting packet header information and packet size information to  
3 one or more pipeline stages, said packet header information and said  
4 packet size information corresponding to a packet;

5 b) determining within a stage associated with said pipeline, with said  
6 packet header information, input capacity for said packet;

7 c) comparing within a stage associated with said pipeline, said input  
8 capacity with said packet size; and

9 d) indicating from a stage associated with said pipeline whether said  
10 packet is conforming or non-conforming based upon said  
11 comparison.

1 7. The method of claim 6 further comprising looking up said input capacity  
2 from an input flow table.

1 8. The method of claim 6 further comprising extracting priority information  
2 with said input capacity information.

1 9. The method of claim 8 further comprising placing said priority information  
2 into control label.

1 10. The method of claim 6 further comprising, if said packet is non-conforming,  
2 indicating whether said packet must be discarded.

1 11. An apparatus, comprising:

2 a) a pipeline having a series of stages;

3 b) at least one of said pipeline stages having an interface for coupling to  
4 a memory that stores input capacity information for a packet, said  
5 input capacity information obtainable from said packet's packet  
6 header information;

7 c) at least one of said pipeline stages having an interface that receives  
8 packet size information, an interface that receives said input capacity  
9 information and comparison logic coupled to both said interfaces;

10 d) at least one of said pipeline stages having an interface for coupling to  
11 a memory that stores output capacity information for a packet, said  
12 output capacity information obtainable from said packet's packet  
13 header information or internal information, said internal information  
14 used within a service provider's network; and

15 e) at least one of said pipeline stages having an interface that receives  
16 said packet size information, an interface that receives said output

17 capacity information and comparison logic coupled to both said  
18 interfaces.

1 ~~12.~~ A method, comprising:

- 2 a) presenting packet header information and packet size information to  
3 one or more pipeline stages, said packet header information and said  
4 packet size information corresponding to a packet;  
5 b) determining within a stage associated with said pipeline, with said  
6 packet header information, input capacity for said packet;  
7 c) comparing within a stage associated with said pipeline, said input  
8 capacity with said packet size;  
9 d) indicating from a stage associated with said pipeline whether said  
10 packet is conforming or non-conforming based upon said  
11 comparison;  
12 e) determining within a stage associated with said pipeline, with said  
13 packet header information, output capacity for said packet; and  
14 f) comparing within a stage associated with said pipeline, said output  
15 capacity with said packet size to determine appropriate delay for said  
16 packet.

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